

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated June 28, 2004 (U.S. Patent Office Paper No. 20040622). In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

With the filing of the above identified application on February 10, 2004, a Claim for Priority under 35 U.S.C. § 119 was requested and a certified copy of the corresponding priority document was filed. Acknowledgment of the Claim for Priority under 35 U.S.C. § 119 and acknowledgement of receipt of the certified copy of the corresponding priority document are respectfully requested.

Status of the Claims

As outlined above, Claims 1, 6 through 11, 15 and 21 are pending in this application. Claims 2 through 5, 12 through 14 and 16 through 20 are being cancelled without prejudice or disclaimer, while Claims 1, 6 and 11 are being amended to correct formal errors and to more particularly point out and distinctly claim the subject invention. In addition, new Claim 21 is hereby submitted for consideration.

Additional Amendments

The specification is being amended to correct formal errors and to better disclose and describe the features of the present invention as claimed.

Prior Art Rejections

Claims 1 through 20 were rejected under 35 U.S.C. § 103(a) over Segawa Yuichi, JP 10134565, hereinafter Segawa '565. This rejection is respectfully traversed.

It is respectfully submitted that Segawa '565 does not disclose:

a memory including a memory column including memory cells, wherein each memory cell is coupled to one of the plurality of word line pairs and the pair of data lines, wherein each of the plurality of word line pairs include a read word line and a write word line, and the read word line and the write word line which are included in different word line pairs can both be active simultaneously, as respectively recited in independent Claim 1.

Segawa '565 targets a similar problem for gain cell memories, as for example a 3T cell, in that all data in a row are written at once. Since a data row is much longer than the input data, a read cycle occurs before a write cycle so that unchanged data is not destroyed. Because a read cycle is necessary, writing to a 3T memory typically takes more time than it does to a SRAM.

In Segawa '565, "AND" gates are used with the word lines so that only a segment of a row is written and, therefore, a read cycle is not necessary. However, in Segawa '565, the number of "AND" gates in the Segawa '565 memory must be high and the area overhead is large, especially, for example, for short data lengths, such as 4-bits or 8-bits.

In contrast, in a memory of the present invention as recited in Claim 1, the read word line and the write word line which are included in different word line pairs can be active simultaneously. In this regard, for example, when a write access for a first memory cell occurs in a first timing and a write access for a second memory cell occurs in a second timing after the first timing, a memory of the present invention as recited in Claim 1 can operate a

write access to the first memory cell and a read access to the second memory cell simultaneously. Further, a write cycle of the second memory cell can operate after the write access of the first memory cell without reading data from the second memory cell. Therefore, a memory of the present invention as recited in Claim 1 can also provide a higher speed and a lower product cost.

Therefore, in view of the foregoing, independent Claim 1 is not obvious over Segawa '565. Dependent Claims 6 through 11, 15 and new dependent Claim 21 are at least allowable for the same reasons that independent Claim 1 from which they respectively ultimately depend is allowable. Also, as noted previously, Claims 2 though 5, 12 through 14 and 16 through 20 have been cancelled without prejudice or disclaimer of their subject matter.

Withdrawal of the above identified rejection of Claims 1 through 20 under 35 U.S.C. § 103(a) is respectfully requested.

Reconsideration and allowance of Claims 1, 6 through 11 and 15, and consideration and allowance of new Claim 21, are respectfully requested.

Conclusion

In view of all the above, Applicants respectfully submit that certain clear and distinct differences as discussed exist between the present invention as now claimed and the prior art references upon which the rejection in the Office Action relies. These differences are more than sufficient that the present invention as now claimed would not have been anticipated nor rendered obvious given the prior art. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

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November 29, 2004